

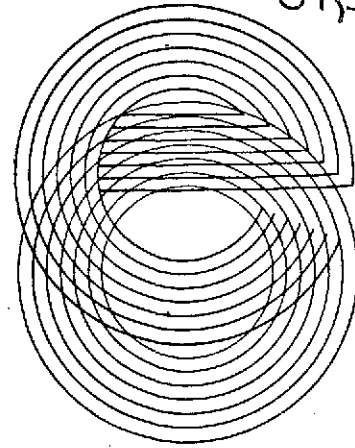
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CR-133934

eason oil company

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October 1, 1973

E73-11053) AN EVALUATION OF THE
SUITABILITY OF ERTS DATA FOR THE
PURPOSES OF PETROLEUM EXPLORATION
Progress Report, (Eason Oil Co., Oklahoma
City, Okla.) 2 p HC \$3.00

N73-32229

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Gentlemen:

This is a Type I Progress Report for the period
June and July 1973.

Experiment Title: An Evaluation of the Suitability
of ERTS Data for the Purposes of
Petroleum Exploration
NASA PROPOSAL 173

Principal Investigator: Dr. Robert Collins, GSFC
Identification No. PR 043

CURRENT STATUS AND ACTIVITIES DURING THIS REPORTING PERIOD

We are continuing to analyze the spring acquired imagery
and compare it with the fall and winter imagery. From these
studies we arrive at the following preliminary conclusions,
which will be tested further as we proceed:

1. The fall (October and early November) imagery is generally
better for geologic interpretation because, for some
reason, the tonal patterns produced by vegetation seem
to more closely parallel lithologic and structural features
than in either the winter or spring imagery. In the
winter and spring imagery strong tonal contrasts,
apparently related to vegetation, tend to emphasize field
patterns rather than geologic features.
2. Spring imagery seems to have better resolution than the
earlier imagery. This is probably the combined effect
of improved processing and improved atmospheric trans-
parency at the time the spring imagery was acquired.
3. Color combinations of bands 6 and 7 seem to be more
useful for geologic interpretation than either three
band combinations or composites of bands 5 and 7.
This conclusion is based on work with transparencies
produced by the diazo process and additive color viewers.

4. The "hazy" or "blurred" areas noted as highly correlated with known oil fields in our type II report seem to be at least partially an effect of man's efforts in exploitation. It is possible to see individual well locations in the high resolution spring imagery and these contribute to the overall brightness of these areas. This conclusion is substantiated by comparison with the RB 57 imagery. We are investigating these areas further.

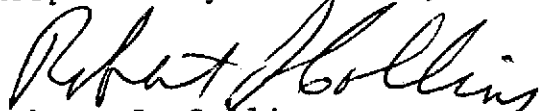
In the field of computer processing we are currently working on density adjustments and "resolution reduction" (using an averaging technique) to enhance tonal patterns and to separate natural from man-made linear features.

ACTIVITIES PROJECTED FOR THE COMING REPORTING PERIOD

Work has proceeded somewhat more slowly than anticipated; however, we anticipate completing this experiment by November 1973. Thus, during the next two reporting periods we anticipate pursuing the following goals:

1. Completing analysis and comparisons of various bands and imagery acquired at different times.
2. Completion of computer and optical enhancement work.
3. Completion of comparisons of ERTS derived information with existing literature, maps, and aircraft acquired photography and imagery.
4. Completion of estimates of costs and benefits associated with using ERTS data for petroleum exploration.

Respectfully submitted,


Robert J. Collins
President, Eason Oil Company

RJC/lms